ABSTRACT

A modular computer and telecommunications system for automatic continuous real-time monitoring, tracking, navigation and proactive warning for one or more private and commercial marine vessels and for automatically controlling their navigation within a specific region. The disclosed system and apparatus employs intelligent display, GPS, and transceiver/modem devices on marine vessels that are underway, anchored or docked to routinely transmit the vessels ID, GPS and status data to a supervisory fail-safe computer server. The server's resident relational database contains both pre-entered static information about all vessels having similar on-board devices, as well as dynamic information (such as coordinate data relating to rough seas, severe weather, GPS data for all participating vessels, underwater hazards, fog, etc.). Applications software in the fail-safe server conducts an 'around-the-clock' continuous and automatic real-time comparison of the received vessel parameters with the static and dynamic information stored its relational database. Should the comparison and control algorithm detect any threatening or off-normal situations, such as approaching participating vessels in fog/darkness, severe weather, etc. the server transmits an outgoing packet of information containing a proactive warning via digital wireless to the appropriate participating vessels' GPS Display/transceiver/modem devices. The software within each device will enable appropriate audible message displays and/or graphic image warnings for participating vessels in the region, as well as provide waypoints/magnetic compass headings for autopilots. The system fail-safe server also automatically responds to a keypad integral with the device for Maydays and operator non-emergency queries, such as the ID, speed, direction, of nearby vessels, weather, etc.